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ABSTRACT

Two teaching models of a service delivery program designed to prevent speech-language problems in lower socioeconomic children were compared. Specific goals included increasing mothers' awareness of the sensory input to which infants are responsive and increasing mothers' abilities to read infant nonverbal signals. In Model 1, two speech-language pathologists and one childbirth educator demonstrated to new mothers in the hospital how to communicate with the infant through the senses and how to read the baby's nonverbal signals. In Model 2, the speech-language pathologists trained two community health nurses to conduct the training experience. Less actual demonstration was possible with Model 2. Recorded responses of each mother were analyzed and scored according to the suggestions integrated into the mother's home setting and the different behaviors the mother described in response to stimuli presented to her infant. Findings suggested that Model 1 was more effective in helping mothers learn to read infant nonverbal signals than Model 2. Model 1 was most effective with adolescent mothers, because it facilitated their incorporation of suggestions as well as their description of infant communication. (CL)

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A PRIMARY PREVENTION PROGRAM: TEACHING MODELS I AND II

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Abstract

Two models of a service-delivery prevention program are compared. Both targeted the primary prevention of speech-language problems in children born to lower socioeconomic mothers. Model I, conducted by two speech-language pathologists and one childbirth educator, was more effective in facilitating mothers' reading infant non-verbal signals than Model II, conducted by two trained nurses. Model I was even more effective with adolescent mothers, facilitating both their incorporation of suggestions and their description of infant communicators.

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BACKGROUND

The primary prevention of speech and language problems has become/is becoming a service delivery alternative for speech-language pathologists (Ad Hoc Committee, 1983; Cole, 1985; Committee, 1982; Committee, 1984; Marge, 1984). The need for preventive measures with low income/economically disadvantaged populations has been stressed (Committee, 1984; Harlan,1985). Of course, the profession's epidemiologic data base must be expanded to include economically disadvantaged populations (1985 National Colloqiuum, 1985).

Concern for the language development of poverty children is longstanding (Feagans & Farran, 1982; Golden, Bridger & Montare, 1974). Studies raise questions about the facilitative nature of the low socioeconomic status mother's communicative interaction with her infant/child (Adams & Ramey, 1980; Chapman, 1981; Crittenden & Bonvillian, 1984; Farran & Haskins, 1980; Farran & Ramey, 1980; Landy, Clark, Schubert & Jillings, 1983; Ninio, 1980; Olsen, Olsen, Pernice & Bloom, 1981; Osofsky & Osofsky, 1970). These studies can be summarized as reporting that low SES mothers have demonstrated: (1) limited verbal interaction with their children, (2) difficulty recognizing their infants' cues and consequently anticipating and fulfilling newborn needs, (3) a tendency to ignore their infants' initiations, (4) limited face-to-face interaction with their infants, (5) less mutual play with their children, (6) less enjoyment in turn taking and less contingent responsiveness during play, (7) less variety in labelling actions and attributes during book reading, (8) a greater use of imperatives and (9) a general withdrawl from the interactive demands placed upon them by their toddlers. Badger, Edwards & Burns (1981) stated that social class differences in presymbolic vocal interactions between infants and their mothers may be the early precursors of later social class differences in language and intellectual development.

Marge (1984) stated that there is considerable evidence to support early intervention programs and environmental modification for children who are at risk for language disorders. Olsen et al. (1981) reported a study which was successful in increasing young, low SES mothers' awareness of their infants' cues and in creating a more sensitive mother-infant interaction within each dyad. Ramey, Sparling & Wasik (1981) reported successful early intervention programs which positively modified mother-infant interaction systems in high-risk dyads. Badger, et.al (1981) described a curriculum model for promoting cognitive and linguistic competence among children of the poor. It targeted the interactive behaviors of mother and child during three successive stages of the child's development (0-36 months).

The stated mission of the profession of speech-language pathology supports the primary prevention program described here. The authors realize that the efficacy of this primary prevention strategy is not well supported by research involving large numbers of subjects followed longitudinally. It is hoped that the report will serve as a catalyst for both clinical and research efforts in the area of primary prevention. Through such activity, the profession can gain the solid evidence needed to support widespread prevention.

SERVICE DELIVERY PROGRAM

Purpose and Population

The purpose of this project was to assess the effectiveness of two teaching models of a service-delivery program targeting the primary prevention of speech-language problems in lower socioeconomic children. Specific goals of the program were to increase mothers': (1) awareness of sensory input to which infants are responsive and (2) abilities to read infant non-verbal signals. The population included two groups of women; Group A received Teaching Model I and Group B Teaching Model II.

Procedures

Teaching Model I. Project staff were two certified speech-language pathologists and one certified childbirth educator. When a mother receiving prenatal health care from the county's Health Department delivered, one of the project staff spent 20 minutes with mother and infant in the hospital. Auditory and visual stimuli were used to demonstrate how to communicate with the infant through the senses and how to read the baby's non-verbal signals as "words". One-week and six-week (post-hospital visit) telephone calls were a follow-up mechanism. A set format for questioning (See Appendix A) probed each mother's: (1) integration of given suggestions into the home setting and (2) description of infant behaviors in response to given stimuli. Each mother's responses were recorded.

Teaching Model II. The speech-language pathologists, who participated in Teaching Model I, trained community health nurses through demonstration, practice and guidance to conduct the in-hospital teaching. Each nurse observed one of the speech-language pathologist's teaching 2 or 3 mothers. Infants were always with their mothers and were involved in teaching activities. Each nurse then conducted two or three teaching sessions herself, being observed and guided by the speech-language pathologist. Infants were again involved in the teaching. Training was concluded when the nurses demonstrated skill in presenting stimuli, skill in explaining ongoing activities to mothers and skill in reading/interpreting infant signals as words. The teaching procedures and the theory behind them were not new to these two nurses. They had been aware of both from an observer's point of view for over a year. Both nurses had attended lectures given by the speech-language pathologists or the topic of early parent-infant interaction and the development of communication. They had also observed the slide/tape "Baby's First Conversation", produced by one of the speech-language pathologists. In addition, the nurses had heard the speech-language pathologists lecture about their in-hospital teaching. After formal training, the speech-language pathologists were always available by telephone for questions. Periodic contacts with the two nurses provided opportunities for inquires and clarification. During their in-hospital teaching of mothers, the nurses included communication information with content about baby equipment, financial resources, family planning, etc. Due to time constraints the newborn was not always brought to the mother or vice versa so demonstration did not always occur. The follow-up mechanism was telephone calls made by the authors within one month of the baby's birth. The format for questioning and recording was the same as in Model I.

Comparison of Models I and II. Recorded responses of each mother were analyzed by both authors. Scoring assessed the number of: (1) suggestions each mother integrated into her home setting and (2) different behaviors she described her infant doing in response to presented stimuli. Scoring criteria appear in Appendix A. For Group A mothers, analysis was performed on 1-week responses only, as they were the same as 6-week responses.

RESULTS AND DISCUSSION

Ratings made for each mother during telephone interviews appear in Tables 1 and 2. Table 1 presents the scores for mothers in Teaching Model I and Table 2 for mothers in Teaching Model II.

Teaching Models I and II proved to be equally effective in fostering mothers' integration of suggestions.* Teaching Model I was significantly more effective than Model II in fostering mothers' descriptions of infant behaviors, perhaps because Model I provided demonstration and presented communication information separate from other topics.* For adolescent mothers, Teaching Model I was significantly more effective in fostering the integration of suggestions as well as descriptions of infant behaviors.* Perhaps mode of presentation was especially important for skill acquisition by adolescent mothers. Among mothers in Teaching Model II there was no significant difference in the number of infant behaviors described by the mothers of well-babies as compared to the mothers of babies in Special Care Nurseries.* The babies' medical status did not impact on results. In Teaching Model I, all were well-babies.

Future program plans could include: (1) speech-language pathologists' following a group of lower socioeconomic mother-child dyads to monitor and enhance child language development through the child's third birthday and (2) speech-language pathologists' developing an expanded program for training county child health nurses to give communication information to a larger group of lower socioeconomic mother-child dyads. Any replication of the present study should first determine whether telephone descriptions of infant behaviors are an accurate measure of mothers' abilities to read infant non-verbal signals; perhaps on-sight observations of mother-infant interaction would be more definitive.

* All comparisons were made using the t-test for independent measures; alpha = 0.05.

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APPENDIX A

Elicitation Procedures and Scoring Criteria

SUGGESTIONS INTEGRATED

Elicitation Procedures

Responses were elicited from each mother by asking the question:

Group A: "Of the suggestions given to you (in the hospital), which ones are you using with your baby?" (Probes were used when necessary.)

Group B: "Tell me about the suggestions they gave you on teaching your baby." (Probes were used when necessary.)

Scoring Procedures

Mothers received a score of 1 for describing the integration of each of the following suggestions. (Possible score of 5):

Criteria

1. Mother's volitional activity with a noisemaker (e.g. bell, rattle, music box).

2. Mother's volitional use of the black and white face (given to her while in the hospital).

3. Mother's volitional talking to the baby.

4. Mother's volitional positioning of the baby or herself so the baby could see her face.

5. Mother's volitional oral movement (e.g. protruding her tongue) to seek imitation from her baby or to imitate her baby's oral movements.

INFANT BEHAVIORS DESCRIBED

Elicitation Procedures

Responses were elicited from mothers of both groups by asking the question "How did your baby respond?"

Scoring Procedures

Mothers received a score of 1 for the description of each distinct infant response to stimuli listed above.

Criteria

Behaviors such as "stares at," "looks at" and "listens to" were not scored.

Table 1. Teaching Model I: Scores From Telephone Interviews

Dyad Number	Age of Mother	Medical Status of Infant	Number of Suggestions Integrated	Number of Infant Behaviors Described
1	24	well-baby	3	5
2	21	"	3	5
3	19	"	5	4
4	20	"	4	3
5	19	"	4	2
6	18	"	4	3
7	17	"	5	5
8	19	"	5	3
9	19	"	5	4
10	18	"	5	3
11	20	"	5	5
12	19	"	4	5
13	20	"	4	4
14	17	"	2	1
15	22	"	3	2
16	19	"	4	7
17	20	"	5	3
18	20	"	4	5
19	24	"	5	7
20	16	"	4	3
21	17	"	4	3
22	20	"	4	2
23	21	"	4	3
24	28	"	4	2
25	22	"	4	5
26	17	"	1	2
27	17	"	4	7
28	25	"	1	2
29	22	"	4	4
30	20	"	3	3
31	23	"	1	2
32	22	"	2	4
33	25	"	5	4
	$\bar{x}$ = 20.30yrs		$\bar{x}$ = 3.76	$\bar{x}$ = 3.70
	mdn = 20 yrs	100% well-babies		

Table 2. Teaching Model II: Scores From Telephone Interviews

Dyad Number	Age of Mother	Medical Status of Infant	Number of Suggestions Integrated	Number of Infant Behaviors Described
1	23	scn > 24 hrs	2	0
2	19	"	4	4
3	13	well-baby	2	1
4	19	scn > 24 hrs	3	2
5	17	"	4	4
6	12	well-baby	4	4
7	15	"	3	2
8	22	scn > 24 hrs	3	0
9	18	"	4	3
10	17	well-baby	5	4
11	22	scn > 24 hrs	3	2
12	24	well-baby	5	5
13	23	"	3	8
14	18	"	3	2
15	18	"	4	5
16	18	"	1	0
17	15	scn > 24 hrs	2	1
18	19	well-baby	3	3
19	22	scn > 24 hrs	4	5
20	15	"	2	2
21	16	well-baby	3	3
22	16	"	2	1
23	24	"	4	5
24	20	"	4	3
25	15	"	4	4
26	17	"	4	4
27	17	"	1	2
28	26	"	4	3
29	16	"	3	3
30	15	"	3	3
31	16	"	3	2
32	15	scn > 24 hrs	3	4
33	13	well-baby	3	3
	$\bar{x}$ = 18.03 yrs		$\bar{x}$ = 3.18	$\bar{x}$ = 2.94
	mdn = 17 yrs	33% scn > 24 hrs		